

1 CLAIMS

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3 What is claimed is:

- 4
- 5 1. A balanced blue spectrum therapy lighting fixture, the lighting fixture comprising:
6 a light source; and
7 a mixture of blue light and white light within the light source having a range
8 between approximately 90% 420 – 490 nm blue light and approximately
9 10% white light to approximately 10% 420 – 490 nm blue light and
10 approximately 90% white light.
11
- 12 2. The lighting fixture of claim 1 wherein the blue light is 50% 420 – 490 nm blue
13 light and 50 % white light.
14
- 15 3. The lighting fixture of claim 1 and further comprising:
16 an array of fluorescent bulbs or L.E.D.'s, the bulbs and L.E.D.'s containing blue
17 light and white light.
18
- 19 4. The lighting fixture of claim 1 and further comprising:
20 a single bulb with one side emitting blue light and the other side emitting white
21 light thereby emitting a balanced light.
22
- 23 5. The lighting fixture of claim 5 wherein one half of the bulb is filled with the 420 -
24 490 nm blue phosphor and baked and the other side is filled with white phosphor and
25 baked.
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- 27 6. The lighting fixture of claim 1 and further comprising:
28 a switching mechanism for adjusting blue and white scotopic/photopic light levels
29 thereby affecting melatonin levels..

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- 2 7. The lighting fixture of claim 6 wherein in the switching mechanism is selected
- 3 from the group consisting of electronic, mechanical, and radio frequency activation
- 4 switching.
- 5
- 6 8. The lighting fixture of claim 1 and further comprising:
- 7 at least one color sleeve positioned over a light source for providing the blue light
- 8 and white light levels.
- 9
- 10 9. The lighting fixture of claim 8 wherein the color sleeves are adjustable.
- 11
- 12 10. The lighting fixture of claim 1 wherein the blue light and white light levels are
- 13 incorporated into fiber optics, one fiber for blue light and one fiber for white light.
- 14
- 15 11. The lighting fixture of claim 1 wherein the blue light and white light levels are
- 16 combined with an after-glow phosphor undercoat.
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- 18 12. The lighting fixture of claim 1 wherein the lighting source contains the following
- 19 scotopic phosphor blend:

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<u>Approx. %</u>	<u>Phosphor Chemical Composition</u>	<u>Phosphor Peak (nm)</u>
23 40	SrO (P ₂ O ₅ B ₂ O ₃): Eu	478
24 22	Y ₂ O ₃ : Eu	611
25 20	La PO ₄ : Co, Tb	544
26 18	Sr ₂ P ₂ O ₇ : Eu	421
27 8	Ba Mg ₂ Al ₁₆ O ₂₇ : Eu	450

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1 13. The lighting fixture of claim 12 wherein the scotopic phosphor blend comprises
2 phosphors to give light primarily in the 400 – 620 nm range.

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4 14. A method for creating balanced blue spectrum therapy lighting, the method
5 comprising:

6 providing a light source; and

7 mixing blue light and white light having a range between approximately 90% 420
8 – 490 nm blue light and approximately 10% white light to approximately
9 10% 420 – 490 nm blue light and approximately 90% white light.

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11 15. The method of 14 and further comprising:
12 mixing the blue light and white light with 50% 420 – 490 nm blue light and 50 %
13 white light.

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15 16. The method of claim 14 and further comprising:
16 providing an array of fluorescent bulbs or L.E.D.'s, the bulbs and L.E.D.'s
17 containing blue light and white light.

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19 17. The method of claim 16 and further comprising:
20 emitting blue light from one side of the bulb; and
21 emitting white light from the other side of the bulb.

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23 18. The method of claim 16 and further comprising:
24 filling one half of the bulb with the 420 - 490 nm blue phosphor;
25 baking the blue phosphor;
26 filling the other half of the bulb with white phosphor; and
27 baking the white phosphor.

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29 19. The method of claim 14 and further comprising:

- 1 adjusting the blue and white scotopic/photopic light levels thereby affecting
2 melatonin levels..
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- 4 20. The method of claim 19 and further comprising:
5 providing a switching mechanism selected from the group consisting of electronic,
6 mechanical, and radio frequency activation switching.
7
- 8 21. The method of claim 14 and further comprising:
9 positioning at least one color sleeve over a light source for providing the blue light
10 and white light levels.
11
- 12 22. The method of claim 21 wherein the color sleeves are adjustable.
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- 14 23. The method of claim 14 and further comprising:
15 incorporating the blue light and white light levels into fiber optics, one fiber for
16 blue light and one fiber for white light.
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- 18 24. The method of claim 14 and further comprising:
19 combining the blue light and white light levels with an after-glow phosphor
20 undercoat.
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- 22 25. The method of claim 25 and further comprising:
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25	<u>Approx. %</u>	<u>Phosphor Chemical Composition</u>	<u>Phosphor Peak (nm)</u>
26	40	SrO (P ₂ O ₅ B ₂ O ₃): Eu	478
27	22	Y ₂ O ₃ : Eu	611
28	20	La PO ₄ : Co, Tb	544
29	18	Sr ₂ P ₂ O ₇ : Eu	421

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Ba Mg₂ Al₁₆ O₂₇: Eu

450

26. The method claim 25 wherein the scotopic phosphor blend comprises phosphors to give light primarily in the 400 – 620 nm range.